

PROCEEDINGS OF THE
ENTOMOLOGICAL SOCIETY OF WASHINGTON

VOL. 30

OCTOBER, 1928

No. 7

A NEW GENUS AND SPECIES OF APHIDIDAE
(HOMOPTERA).¹

A. A. GRANOVSKY, *University of Wisconsin.*

When Walsh (5), in 1862, erected the genus *Calaphis* he based it upon his new species *betulella*, the type of the genus. The main generic characters were based upon the relative length of antennae, absence of radial sector, heavy anal veins, type of cornicles and thoracic segments.

Until 1910 only one species was listed under this genus. In that year Gillette (3) transferred to *Calaphis* two of Fitch's species, *C. castaneae* and *C. betulaeacolens*. In 1916 Baker (1) added two new species, *C. alni* and *C. castaneooides*, while Patch (4), in 1923, added the new species *C. myrica* and included *C. annulata* (Koch). Up to this date a total of seven American species have been referred to *Calaphis*. In the meantime the generic characters of *Callipterini* became more crystallized and definitely established. Baker's contribution (2), to our knowledge of the generic classification of aphids, removes a great deal of misunderstanding and confusion. A new set of characters was introduced for separation of genera belonging to the tribe *Callipterini*. The types of caudae and anal plates were found to be very stable generic characters and exceedingly useful ones, when employed in connection with other characters, such as the type of cornicles, antennae, sensoria, antennal tubercles, wing venation, etc., together with biological characters of related species.

On several occasions in recent years a species of aphid was taken in Wisconsin on white paper birch, *Betula papyrifera* Marsh. It approaches very closely to *Calaphis*, yet its radial sector is complete and it has a very markedly knobbed cauda in the shape of a spatula and a somewhat more deeply cleft anal plate than is the case with the typical species belonging to *Calaphis*. The type of cauda resembles that of *Callipterus juglandis* Frisch, yet it is distinctly not a *Callipterus* species.

Upon close examination of all the species of *Calaphis* it was found that *C. myrica* Patch from sweet fern has a similar

¹Contribution from the Department of Economic Entomology, Wisconsin Agricultural Experiment Station.

cauda and anal plate and resembles this undescribed species from birch, in several other respects, with the exception of radial sector which is absent.

The birch species was referred to Doctor P. W. Mason at Washington, D. C., and it was also submitted for examination to Doctor C. P. Gillette, Miss M. A. Palmer and Professor H. F. Wilson. In their opinions it is an undescribed species and is worthy of having a new genus erected for it. In accordance with this opinion, the writer has a singular pleasure in erecting a new genus *Cepegillettea* in honor of his highly esteemed teacher, Doctor C. P. Gillette, whose contributions to the knowledge of the aphid family are many and of great value.

CEPEGILLETTEA, new genus.

Antennae of six segments, longer than the body, armed with oval sensoria and liberally provided with prominent capitate hairs; sensorium at the base of unguis long, oval and fringed with several large auxiliary sensoria. Distinct frontal tubercles present. Head, thorax and body with a few stout, clavate hairs. Cornicles truncate, broader at the base, somewhat constricted in the middle and distally imbricated. Cauda spatulate, long, broadly rounded at the tip, deeply constricted about half way from the base, and distinctly imbricated. Cornicles and cauda finely ornamented with minute striae in lineal arrangement. Anal plate large, moderately cleft with broad indentation. Both cauda and anal plate with conspicuous, stout hairs. Fore wings with media twice branched; radial sector either present or totally absent; hind wings with media and cubitus present. Veins heavy and usually bordered. Forms robust and more or less solitary in habit. Antennae of apterous and oviparous females provided with oval sensoria.

Genotype: *Cepegillettea betulaefoliae*, new species.

This genus can be easily separated from other genera of the tribe *Callipterini* by the large spatulate cauda and its ornamentation which is also present on cornicles.

In the structure of cauda this genus resembles the type species of *Callipterus*, yet the genus *Callipterus* is characterized by the deeply bilobed anal plate, the lack of antennal tubercles, the hairy cornicles and the very short unguis. *Cepegillettea* differs from *Callipterus* in having the anal plate only shallowly notched, the very robust and prominent antennal tubercles, the cornicles free from hairs, but imbricated and ornamented as well as the long unguis, which is longer than the base of segment VI.

The genus *Cepegillettea* is closely related to *Calaphis* in a number of characters such as the type of antennae, the presence of frontal tubercles, truncate cornicles, indented anal plate and general appearance of the insect. It differs decidedly,

however, from it by having very long, spatulate cauda (Figs. 8 and 9), broad, somewhat deeper indented anal plate, with imbrications and ornamentation on cornicles and cauda as well as the presence of conspicuous capitate hairs on antennae, frons, thorax and body in which respect it resembles *Macrosiphum*. The typical *Calaphis* species have cauda very short and knobbed (Fig. 18).

Cepigillettea evidently represents the phylogenetic link between the tribes *Callipterini* and *Macrosiphini*.

Two species can be included in the genus *Cepigillettea* at present. No doubt that further study will reveal additional species. The species *C. betulaefoliae* is used for the type of the genus in preference to the older species *Calaphis myricae* Patch, because the writer had the opportunity to collect and study living specimens of the former species, while *C. myricae* was studied only from preserved material through the kindness of Doctor E. M. Patch and the U. S. Bureau of Entomology.

The following keys will separate these species:

Key to the alate viviparous females of Cepigillettea.

1. Antennae black; antennal segment III with 22 to 30 oval sensoria; unguis about four times as long as the base of the sixth segment; radial sector absent.....*myricae* (Patch)
- Antennae irregularly dusky brown; antennal segment III with 14 to 17 oval sensoria; unguis about two times as long as the base of the sixth segment; radial sector present.....*betulaefoliae* n. sp.

Key to the apterous viviparous females of Cepigillettea.

1. Antennal segment III with 13 to 20 circular sensoria; unguis about four times as long as the base of the sixth segment.....*myricae* (Patch)
- Antennal segment III with 10 to 15 circular sensoria; unguis about two times as long as the base of the sixth segment.....*betulaefoliae* n. sp.

***Cepigillettea betulaefoliae*, new species.**

Alate viviparous female. (Plate 7, figures 1, 9, 10 and 13.)

Length of body from frons to the tip of cauda about 2.944 mm. Head orange yellow, with greenish tinge. Eyes large, red. Antennae on prominent frontal tubercles. Length of antenna 5.219 mm. Comparative average lengths of antennal segments as follows: I—14.0; II—8.0; III—86.87; IV—83.00; V—68.00; VI—21.80 plus 44.53. Unguis about two times as long as its base. Antennae pale yellow with black annulations at the distal ends of each segment and with irregular dusky brown to black shadings which are distributed as follows: The base of segment III on the inner margin with a triangular dusky brown annulation; the sensorated area of segment III deeply shaded with dusky brown; the basal half of segment IV with light and distal half with heavy irregular, almost spiral dark brown shadings, which become black toward the end of the segment; the entire segment V with the exception of the

base, deeply shaded with dark brown to black; the base of segment VI and the entire unguis dusky brown, the tip of the base of segment VI black. The entire length of antennae, with exception of segments I and II, finely imbricated, —this imbrication is more pronounced distally. Antennae with prominent capitate hairs. Segment III with an irregular row of from 13 to 20, usually 15 to 17, oval, widely margined, large secondary sensoria, placed somewhat in the middle of the segment, but more toward the base. Segment V with a long primary sensorium without fringe and the primary sensorium at the base of the unguis with several large auxiliary sensoria. Frons and head with several pairs of capitate hairs. Rostrum with its black tip reaches up to the second pair of coxae.

Thorax pinkish yellow-orange and with a few capitate hairs; thoracic lobes with very light brown shading. Legs very long, greenish yellow and clothed with capitate hairs. Apices of all femora usually touched with narrow, small blackish patches. The bases and tips of tibiae are ringed with black; occasionally in older individuals the tibiae may be slightly margined and striated on the outer sides with dusky brown; tibial hairs are capitate with the exception of distal ends of tibiae, which are clothed with stout, simple hairs. Tarsi and claws black; empodium present. Fore-wings large; veins heavy and slightly bordered with light brown; stigma yellow; media twice branched; radial sector complete or slightly faded basally. Hind wings with media and cubitus present; hooklets three.

Abdomen yellowish green with a few irregular dark green patches around the cornicles and anterior end of the abdomen. Lateral tubercles small, each provided with a capitate hair. Body hairs on several posterior segments, near cauda, long and capitate. Cornicles about 0.160 mm. long, truncate, broader at the base, somewhat constricted in the middle, imbricated and ornamented with fine lineal striations, the apices of cornicles are black. Cauda—yellow, long, spatulate, broadly rounded at the tip and deeply constricted about half way from the base, distinctly imbricated and transversely ornamented with fine lineal striations. The length of the base of cauda about 0.176 mm. and the spatulate part about 0.192 mm., total length being about 0.368 mm. Anal plate yellow, large, granulated, and moderately bilobed with a broad indentation. Both anal plate and cauda provided with long lash-like stout hairs.

Described from 12 specimens collected at Sturgeon Bay, Wisconsin.

Apterous viviparous female. (Plate 7, figures 2, 8 and 11.)

Length of body from frons to the tip of cauda about 3.040 mm. Head yellowish green. Eyes red. Antennae with conspicuous capitate hairs and are placed on prominent antennal tubercles. Length of antenna 5.019 mm. Comparative average lengths of antennal segments as follows: I—14.00; II—8.00; III—87.45; IV—76.47; V—61.55; VI—21.00 plus 40.87. Coloration and imbrication of antennae as in the alate viviparous females, only irregular shadings are somewhat lighter, especially along the sensorated area of segment III,

which has from 10 to 15 oval with wide margins secondary sensoria. They are placed in a somewhat irregular row about the middle of the segment. Primary sensoria as in the alatae. Frons and head with several stout capitate hairs. The tip of rostrum black, reaching slightly beyond the second pair of coxae.

Thorax greenish yellow to orange and is clothed with a few capitate hairs. Legs long, hairy, and are colored as in the alate viviparous females.

Abdomen yellowish green, with similar dark green irregular patches as in the alatae. Abdomen conspicuously armed with stout clavate hairs, each arising from small lateral and body tubercles. Cornicles about 0.160 mm., truncate, wider at the base, constricted in the middle, imbricated and ornamented with transverse fine lineal striations, especially at the distal ends, which are marked with dusky brown to black. The cornicles are stouter than in the alate viviparous females. Cauda and anal plate identically colored, shaped, sculptured and imbricated as in the alatae. The cauda is slightly larger and measures as follows: The base about 0.192 mm. and the spatulate part about 0.224 mm., total length being about 0.416 mm. Both anal plate and cauda hairy.

Described from 19 specimens taken in Wisconsin.

Apterous oviparous female. (Plate 7, figures 3, 6, 7 and 12.)

Length of body from frons to the tip of cauda about 3.216 mm. Head greenish yellow to light green. Eyes dark red. Antennae armed with prominent capitate hairs and placed on distinct frontal tubercles. Length of antenna 5.107 mm. Comparative average lengths of antennal segments as follows: I—14.0; II—7.0; III—82.50; IV—76.10; V—66.00; VI—22.12 plus 45.00. Coloration and imbrication of antennae as in the apterous viviparous females. Segment III armed with from 10 to 14, usually 10 to 12 oval wide-margined secondary sensoria. They are placed in an irregular row about the middle of the segment, but more toward the base as in the preceding forms. The primary sensoria on segments V and VI as in the alate viviparous females. Frons and head with prominent capitate hairs. The tip of rostrum black; reaching beyond the bases of the second pair of legs.

Thorax yellow to very light orange, provided with a few stout, clavate hairs. Legs hairy, long, yellow with greenish tinge; distal ends of femora with faint blackish markings; tibiae ringed with black at the bases and distal ends; tarsi black. Hind tibiae only very slightly swollen at basal halves, and armed with numerous small circular sensoria, which cover proximal two-thirds of the tibiae.

Abdomen deep yellow, arched, especially in older individuals. Area between the eggs is greenish. Clavate hairs over the body present. Cornicles as in the apterous viviparous females only more conspicuously marked with black toward apices. Ovipositor slightly drawn out. Cauda broadly conical with slight constriction toward the base. Anal plate rounded, entire. Both anal plate and cauda armed with stout simple hairs.

Described from 5 specimens collected in Wisconsin.

Alate Male.

On two occasions alate males were taken, but on account of their swift habits they escaped before collecting box was closed.

Host plant.—White paper birch, *Betula papyrifera* Marsh.

Type locality.—Sturgeon Bay, Wisconsin.

Cotypes and *paratypes* in the U. S. National Museum; and in the collections of Doctor C. P. Gillette and the writer.

Habit of feeding.—This interesting species feeds singly or sometimes in small groups on the lower sides of the leaves and also infests the young succulent birch sprouts and terminal shoots near the ground. It is usually found in dense foliage, and is evidently a shade and moisture loving species. It is extremely difficult to collect because it is very active, and as soon as leaves are only gently touched all of the adult individuals and older nymphs drop off their feeding places, while young nymphs are running away to the ground.

Oviparous females invariably were taken not more than one foot from the ground, where they deposit their deep yellow eggs near buds of young birch sprouts. Later the eggs turn black in color.

The following collections were taken by the writer on *B. papyrifera* Marsh:

June 30, 1923, Egg Harbor, Wis.	1 apterous viviparous female.
August 10, 1925, Sturgeon Bay, Wis.	1 alate and 1 apterous viviparous female.
August 11, 1925, Sturgeon Bay, Wis.	2 alate and 4 apterous viviparous females, some nymphs.
August 13, 1925, Sturgeon Bay, Wis.	6 alate and 3 apterous viviparous females.
September 16, 1925, Sturgeon Bay, Wis.	1 immature oviparous female.
October 6, 1925, Sturgeon Bay, Wis.	2 oviparous females and 2 immature oviparous nymphs.
July 23, 1927, Sturgeon Bay, Wis.	4 apterous viviparous females and several nymphs.
July 27, 1927, Sturgeon Bay, Wis.	2 apterous and 2 alate viviparous females, several nymphs.
August 2, 1927, Sturgeon Bay, Wis.	2 apterous and 1 alate viviparous females, 5 nymphs.
September 7, 1927, Spider Lake, Wis.	2 apterous viviparous and 1 immature oviparous female.

September 16, 1927, Sturgeon Bay, Wis.3 oviparous females and 2
immature oviparous fe-
males.

Distribution records of this species besides Wisconsin are known from Merritt, British Columbia, Canada, as the specimens of two apterous viviparous females in a balsam slide, received through the kindness of Miss A. P. Macdougall, agree in all respects with this species, collected at Wisconsin. They were taken August 10, 1924, on *Betula occidentalis* Hook.

Cepigillettea myricae (Patch.)

Calaphis myricae Patch, Hemiptera of Connecticut, Sta. Geol. & Nat. Hist. Surv. Bul. 34, 1923, p. 275-277.

Alate viviparous female. (Plate 7, figures 4, 14 and 17.)

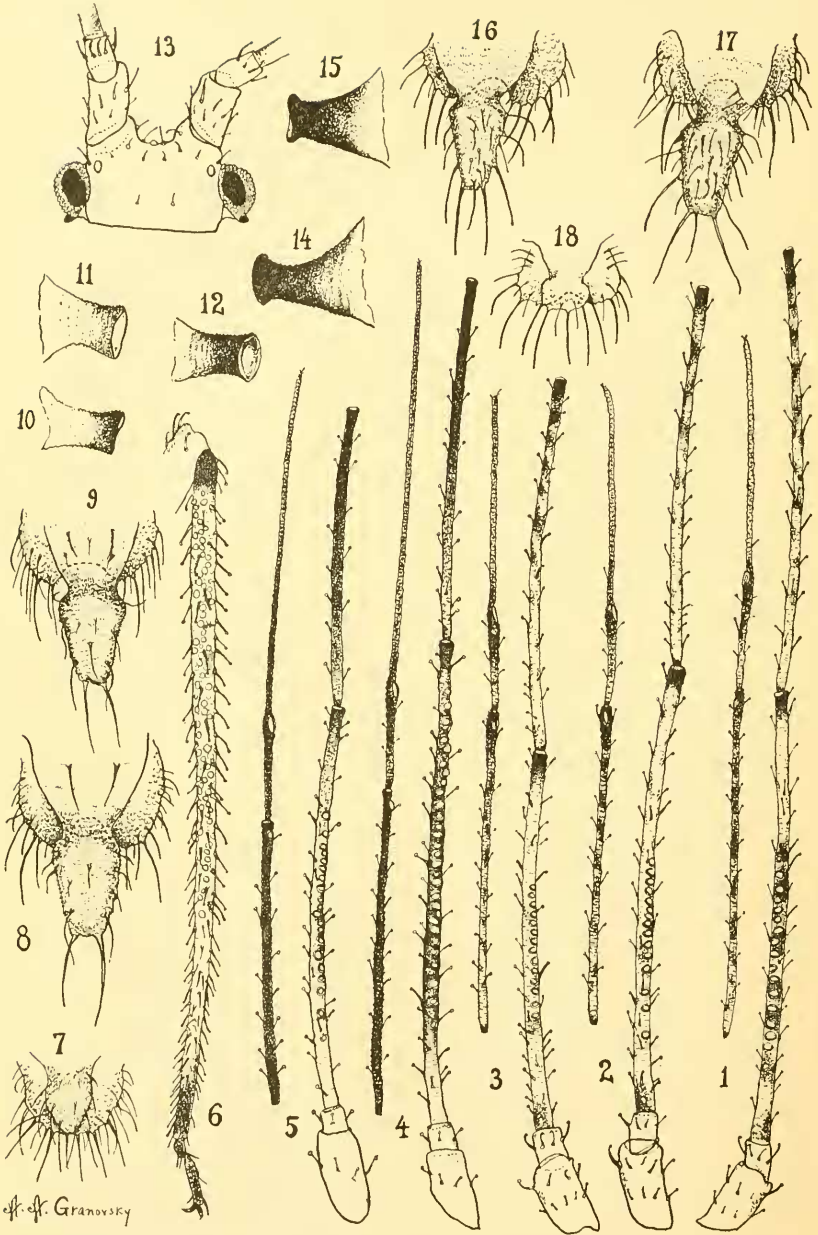
Apterous viviparous female. (Plate 7, figures 5, 15 and 16.)

Only alate and apterous viviparous females of this species are known from sweet fern, *Myrica asplenifolia*. They can be readily separated from *betulaefoliae* by the key to the respective forms given above.

Acknowledgments and appreciation are due to Doctor E. M. Patch and the U. S. National Museum for the loan of specimens of *C. myricae*; to Miss A. P. Macdougall for a slide of *C. betulaefoliae* from British Columbia; to Doctor C. P. Gillette, Doctor P. W. Mason, Miss M. A. Palmer and Professor H. F. Wilson who have very kindly examined specimens of *betulaefoliae* and rendered their opinions.

LITERATURE CITED.

1. BAKER, A. C.—1916. A Synopsis of the Genus *Calaphis*. Proc. Ent. Soc. Wash. 18: 184-189.
2. BAKER, A. C.—1920. Generic Classification of the Hemipterous Family, Aphididae. U. S. D. A. Bul. 826: 1-109, illustr.
3. GILLETTE, C. P.—1910. Plant Louse Notes, Family Aphididae, Jour. Ec. Ent. 3: 367-371, illustr.
4. PATCH, E. M.—1923. Family Aphididae. In the Hemiptera or Sucking Insects of Connecticut, by W. E. Britton, Sta. Conn. Geol. and Nat. Hist. Surv. Bul. 34: 250-335, illustr.
5. WALSH, B.—1862. On the Genera of Aphididae found in the United States. Proc. Ent. Soc. Phila. 1: 294-311.



H. H. Granovsky

EXPLANATION OF PLATE.

Cepegilletta betulaefoliae, n. sp.

Alate viviparous female:

1, antenna; 9, cauda and anal plate; 10, cornicle; 13, head.

Apterous viviparous female:

2, antenna; 8, cauda and anal plate; 11, cornicle.

Oviparous female:

3, antenna; 7, cauda and anal plate; 12, cornicle; 6, hind tibia.

Cepegilletta myricae (Patch).

Alate viviparous female:

4, antenna; 14, cornicle; 17, cauda and anal plate.

Apterous viviparous female:

5, antenna; 15, cornicle; 16, cauda and anal plate.

Calaphis betulaecolens (Fitch).

18, cauda and anal plate of alate viviparous female.

NOTE.—Drawings on this plate are made to the following scales.—

1, All antennae, head and tibia are drawn to the same scale.

2, All drawings of caudae, anal plates and cornicles are made to the same scale.

All measurements of relative lengths of antennae can be transferred into millimeters by using the following scale: 1.0 = 0.016 mm.

NOTES ON THE BETHYLINAE WITH DESCRIPTIONS OF
ONE NEW CUBAN AND TWELVE NEW NORTH
AMERICAN SPECIES (HYM.).

BY ROBERT FOUTS.

This study is based principally on material preserved in the collection of the United States National Museum. Several species are described from specimens in my own collection and one, *Bethylus amoenus*, is based on material sent to me by Dr. J. C. Bradley of Cornell University.

In preparing the keys to *Pseudisobrachium* and to *Goniozus* all of Ashmead's type material was carefully studied and more recently collected specimens compared with it. Kieffer's species are placed according to the information given in his descriptions and in his own keys.

Genus **PSEUDISOBRACHIUM** Kieffer.

Key to the North American Species.

- | | |
|---|------------------------------|
| 1. Females..... | 2 |
| Males..... | 7 |
| 2. Abdomen shorter than the thorax..... | <i>myrmecophilum</i> Ashmead |
| Abdomen longer than the thorax..... | 3 |
| 3. Abdomen about one and two-thirds times as long as the thorax; head one and one-fourth times as long as wide (from anterior margin of clypeus | |